

REMARKS

Claims 1-20 stand rejected. No claims are added or canceled by amendment. Accordingly, claims 1-20 are at issue.

The drawings stand objected to under 37 C.F.R. §1.83(a). The drawings have been amended to illustrate the “dipole axis,” which is described in paragraph 0016 of the present application as referring to an axis of propagation of the dipole. The dipole axis 112 is illustrated with a dashed line to indicate that it is not a physical component. Also, the drawings have been amended to identify the convex outer side and the concave inner side, as described in paragraph 0120 of the present application. Corresponding amendments are made to paragraphs 0016 and 0120. No new matter is added.

Claim 5 stands objected to because of a minor informality. Claim 5 is amended as suggested by the examiner. No change in the scope of claim 5 is intended by the amendment.

Claims 1-20 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The rejection is respectfully traversed.

Regarding claim 1, the meaning of the term “dipole axis,” as it is used in the present application, is set forth in paragraph 0016. Therein, the term “dipole axis” is said to refer to an axis of propagation of the dipole. Accordingly, in the present application, the dipole axis is not a physical structure, but a direction in which electromagnetic waves radiate from the dipole arms. Claim 1 is amended to more clearly state that the folded dipole has an axis of propagation comprising a dipole axis. The profile of the pair of arms is viewed along that dipole axis (e.g., parallel to the axis of propagation).

Regarding the comment that there is no illustration of the dipole axis, it is noted that the drawings have been amended as set forth above. As described in certain examples in the present application, the dipole axis may be perpendicular to a reflective

ground plane and parallel with an input section of the dipole antenna. An illustration of such an example is now presented. It is respectfully submitted that claim 1, as amended, is not indefinite, and that claims which depend from claim 1 are not indefinite for the same reasons.

Claim 16 is amended to more clearly recite that when the dipole box is viewed in plan, each pair of arms has a profile which is concave on one side and convex on the other. The term “viewed in plan” refers to a “plan view,” i.e., a planar top view of a structure. It is respectfully submitted that claim 16, as amended, is not indefinite, and that claims which depend from claim 16 are not indefinite for the same reasons.

Claim 20 is amended to more clearly recite that each pair of dipoles is oriented to radiate at about $\pm 45^\circ$ polarization with respect to vertical. See, for example, paragraph 0115. It is respectfully submitted that claim 20, as amended, is not indefinite.

Claims 1-4 and 9 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,115,778 to Snow. The rejection is respectfully traversed.

Claim 1 recites, inter alia, a folded dipole. A folded dipole is a particular type of dipole including two or more parallel, closely spaced dipoles connected together at their ends with one of the dipoles fed at its center and the others short circuited at their centers. In one illustrated example in the present application, radiating section (302) includes a fed dipole (304, 305), fed at its center, and a passive dipole (306), shorted at its center, the dipoles being separated by a gap (331). The fed and passive dipoles are connected at their ends.

In contrast, the portion of Snow illustrated on page 4 of the office action is not a folded dipole. Because Snow does not disclose a folded dipole as claimed in claim 1, claim 1 is not anticipated by Snow. Also, claims 2-4 and claim 9 are not anticipated by Snow for the same reason.

Claims 1-4 and 9 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,771,162 to Dienes. The rejection is respectfully traversed.

The remarks set forth above with respect to the rejection based on Snow are incorporated herein by reference. The cited portions of Dienes, like Snow, fail to disclose a folded dipole. Instead, the only mention of a folded dipole that could be found in Dienes is an explanation that the dipole in Dienes is not a folded dipole. Dienes, col. 1, lines 58-65. Thus, claims 1-4 and 9 which claim as inventive a folded dipole are not anticipated.

Claims 1, 5-7 and 9-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,313,809 to Gabriel et al. The remarks set forth above with respect to Snow are incorporated herein by reference. The structure illustrated on page 5 of the present office action does not include any folded dipoles, as that term is used in the claims. Accordingly, claim 1, and claims 5-7 and 9-15, which depend from claim 1, are not anticipated by Gabriel.

Independent claim 16, claims, inter alia, a dipole box comprising two or more folded dipoles. As set forth above, the portion of Gabriel relied upon in the present office action does not disclose any folded dipoles, and therefore cannot disclose two or more folded dipoles. Claim 16 is not anticipated for this reason. Also, claims 17-20 depend from claim 16, and therefore are not anticipated by Gabriel as well.

Claims 1, 5-11 and 16-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,573,874 to Saito. The rejection is respectfully traversed.

The remarks set forth above with respect to Snow are incorporated by reference. Saito, like Snow, fails to disclose a folded dipole as claimed in claim 1 or two or more folded dipoles as claimed in claim 16. Accordingly, these independent claims are not anticipated by Saito. Also, claims 5-11 depend from claim 1 and 17-20 depend from claim 16, and such dependent claims are not anticipated for the same reason.

The Commissioner is hereby authorized to charge any additional fee which may be required for this application under 37 C.F.R. §§ 1.16-1.18, including but not limited to the issue fee, or credit any overpayment, to Deposit Account No. 23-0920. Should no proper amount be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 23-0920.

Respectfully submitted,

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